

REQUEST FOR RECONSIDERATION

Applicants thank Examiner Toomer for the helpful and courteous discussion with Applicants' U.S. representative of April 26, 2005. During the discussion, the Examiner indicated that an amendment to Claim 1 to include the limitations of either Claims 6 and 7, which were not rejected over prior art in the Office Action, may overcome the rejections under 35 U.S.C. § 102 and § 103 pending an updated search.

The Office rejected the present claims anticipated by a patent to Colucci (U.S. 5,634,952). The Office asserts that Colucci discloses a reaction product of a phenolic compound and a polyisobutene (PIB). The Office cites to the Abstract; col. 2, lines 65 and 67; and col. 3, lines 1-10, as support that Colucci discloses a reaction product of a polyisobutene. Applicants point out that a polyisobutylene is not explicitly disclosed in the text of the Colucci patent cited by the Office. For example, while column 3, lines 1-3 may disclose that a polymer derived from isobutene may be used, a polyisobutylene is not itself explicitly disclosed.

Moreover the prior art cited by the Office does not explicitly disclose a PIB having an average molecular weight of 1000 or less. With regard to polydispersity (PD), Colucci discloses the following:

It is also preferred that the polyolefin used have a polydispersity in the range of about 1 to about 4 (preferably from about 1 to about 2) as determined by GPC) (column 3, lines 18-21).

Therefore, as a first basis for traversing the anticipation rejection, Applicants submit that Colucci does not explicitly disclose an alkylation product such as one that is obtained as described in a) of Claim 1.

Further, the alkylation recited in present Claim 1 is carried out "at below about 50°C". In contrast, the alkyl-substituted phenolic of Colucci is prepared as follows:

The alkylation of the hydroxyaromatic compound is typically performed in the presence of an alkylating catalyst such as BF_3 at a temperature in the range of about 50 to about 200 °C. (col. 3, lines 11-14).

Whereas the alkylation of present Claim 1 is carried out at below about 50°C, Colucci discloses a PIB that is made by alkylation at a temperature in the range of about 50 to about 200 °C.

The phenolic material of the Colucci examples described as a long chain alkylated phenol (“PBP”). The effectiveness of the alkylation in the Examples of Colucci can be determined from the data provided in Table 1 in columns 9 and 10. The column of Table 1 which is described “% PBP Conversion” shows that at best Colucci is able to obtain only 91.77% PBP Conversion. Applicants submit that based on low PBP conversion the Examples of Colucci are not carried out with a highly reactive polyisobutene such as that of the present claims.

Applicants submit that Colucci at best, suggests a highly reactive polybutylene but does not explicitly disclose the benefits of using a highly reactive polybutene.

For example:

So-called high reactivity polybutylenes having relatively high proportions of polymer molecules have a terminal vinylidene group, formed by methods such as described, [citations omitted] are also suitable for use in forming the long chain alkylated phenol reactants (column 3, lines 4-10).

With respect to the alkylation conditions disclosed in Colucci (e.g., temperatures above 50 °C, Applicants submit that carrying out the reaction under such conditions is known by those of ordinary skill in the art to lead to depolymerization of the polyolefin which may in turn lead to alkylation of the aromatic compound with fragments of the depolymerized polyolefin. The end result is an alkylation product having a lower molecular weight and a

broader molecular weight distributions. Higher reaction temperatures are needed for alkylating aromatic compounds with polyolefins when the polyolefins having internal double bonds such as γ -, δ -, or other internal double bonds.

Applicants submit that the use of the alkylation conditions required in present independent Claim 1 (i.e., a number average molecular weight of less than 1000, a PD of less than 3.0, and an alkylation temperature of below about 50 °C) provide a different product in comparison to the alkylation product of Colucci and therefore the claimed invention is not anticipated by Colucci.

Applicants respectfully request withdrawal of the rejections.

With respect to the rejections of the present claims as obvious in view of Moreton (U.S. 5,876,468), Applicants submit that the prior art relied upon by the Office does not describe an alkylation process or an alkylation product such as presently claimed. With respect to the Office's assertion that the polydispersity required in present Claim 1 does not impart patentability because "the PIBs of Moreton are of the highly reactive type known to have the polydispersity" even though Moreton does not explicitly disclose a PIB having the claimed polydispersity. Applicants submit that a highly reactive PIB does not inherently or necessarily have the PD of the PIB of the present invention. The Office's assertion that it would be reasonable to expect that the PIB has the PD of the present claims is not supportable in view of the fact that it is known in the art that the PD recited in the present claims is not necessarily present in all highly reactive PIBs because highly reactive PIBs may have a broad molecular weight distribution. The Office's assertion is unsupportable and should be withdrawn.

The Office cites to Comparative Example 3 of Moreton as support that the presently claimed invention is obvious. Applicants submit that a comparative example (e.g., one that is not in accordance with the prior art invention) would not lead those of ordinary skill in the art

to the presently claimed invention because the comparative example of Moreton shows inferior performance in comparison to the performance achieved with the prior art inventive example (see Table 1 on page 4 of Moreton).

With respect to the rejection of the present claims as obvious in view of Worrel (U.S. 341,347) Applicants wish to point out that Worrel does not disclose a reaction product of polyisobutene with an aromatic compound. The Office asserts that Worrel's disclosure of polybutene "suggests polyisobutene". Applicants submit that this is not correct. The disclosure of one isomer of a chemical compound does not necessarily disclose a different isomer of the same compound. Applicants submit that any assertion on the part of the Office that all isomers are obvious in view of one another is incorrect and draw the Office's attention to *In re Jones* 21 USPQ 2d 1941 (Fed. Cir. 1992) wherein the Federal Circuit held that different isomers of a compound do not necessarily render one another obvious.

Moreover, Worrel does not use the highly reactive polyolefin of the present claims nor does Worrel restrict the prior art polybutene to one have a PD of less than 3.0 and/or a M_n of 1000. To make up for this deficiency, the Office cites Cherpeck (U.S. 5,300,701) and Baxter (U.S. 6,562,913). Applicants submit that the rejection of the present claims in view of the combination of Worrel with either or both of Baxter and Cherpeck is improper on the basis that the Office has not demonstrated that there is a reasonable expectation of success in the combination of the prior art references or, importantly, that one of ordinary skill in the art would be motivated to make such a combination. Why would one of ordinary skill in the art turn to Cherpeck or Baxter when constructing a process for making a Mannich adduct? Applicants traverse the rejection on the grounds that the Office has merely assembled the limitations of the present claims using hindsight.

Applicants submit that the subject matter of new dependent Claim 25 is further patentable in view of Colucci on the basis that carrying out the alkylation at a temperature "at

below 35 °C" is not disclosed or suggested by Colucci's alkylation which is carried out between 50 and 200 °C.

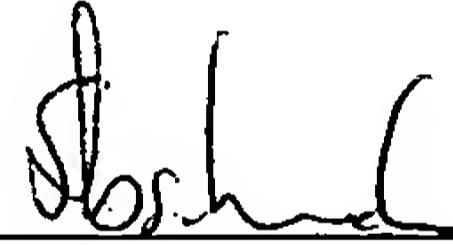
The Office also rejected the claims under obviousness-type double patenting in view of co-pending application 10/089,064. The obviousness-type double patenting rejection is a provisional rejection because neither the claims of the present application nor the claims of the co-pending application have been patented. Applicants request the Office hold the rejection under obviousness-type double patenting in abeyance until one of the present application or the co-pending application is, in fact, patented.

New independent Claims 2-6 and 28 have been added. The new independent claims contain subject matter not rejected in view of any prior art in the Office Action of March 29, 2005.

Applicants submit, as discussed above in detail that the present claims are novel and not obvious in view of the prior art relied upon by the Office and respectfully requests allowance of all now-pending claims.

Respectfully submitted,

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